In Vivo Evaluation of the Limbus Using Anterior Segment Optical Coherence Tomography.

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Public Summary:
Purposes: To investigate the limbal structure using anterior segment optical coherence tomography (AS-OCT) and compare the difference between a Chinese Han population and a Caucasian population. Methods: Sixty healthy Chinese Han subjects (109 eyes, Chinese group) and 32 healthy Caucasian subjects (51 eyes, Caucasian group) were included in this comparative cross-sectional study. The central cornea and the superior, inferior, nasal, and temporal limbal regions of each subject underwent Fourier-domain AS-OCT. The following parameters were measured: corneal epithelial thickness (CET), maximum limbal epithelial thickness (LET), the mean LET, the width of limbus, distance between scleral spur and the location where limbal epithelium was the thickest (S-T), and limbal epithelial area between scleral spur and the end of Bowman's layer (LEA). Results: CET was similar in both groups (P = 0.577). The width of limbus was more than 32.8% greater in all limbal quadrants in the Caucasian group (range, 1.25-2.20 mm) than in the Chinese group (range, 0.81-1.40 mm). S-T and LEA were also significantly higher in all limbal quadrants in the Caucasian group (all P < 0.001). The maximum LET and mean LET were 7.8% and 6.9% thicker at the nasal limbus and 8.1% and 8.7% thicker in the temporal limbus in Caucasian subjects than in Chinese subjects. Conclusions: The limbal structures can be visualized using AS-OCT and differ significantly between the Caucasian and Chinese eyes. Translational Relevance: Research of the limbus and surgeons performing procedures involving the limbal area should take into consideration of the anatomic differences especially when limbus is used as an anatomic reference.

Scientific Abstract:
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